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Magnet Systems Division

MEMORANDUM

To: Roger Coombes

From: Carl Goodzeit *Carl*

Date: August 20, 1990

Subject: BNL-FNAL CDM Compatibility

We had a meeting at BNL on August 14 to address questions raised on the capability of the BNL version of the CDM for assembly on the FNAL tooling and other related topics. The meeting was attended by staff members from BNL, FNAL and SSCL (I have the list of attenders.). The following is a summary list of recommendations or continuing issues:

1. Collaring: The first two 50mm long magnets are planned to be collared at BNL on the new production type collaring press. After that, any subsequent magnets required for the string test could also be collared the same way with industrial participation. It was felt there is some compromise to the design if the BNL collars were to be altered to fit the FNAL collaring tooling (See Figure 1). Thus, it was recommended that FNAL proceed to obtain dies for the upper and lower collaring press laminations that would exactly match the BNL collar. The laminations would be made into tooling sections which could be assembled into the FNAL press frame to permit collaring of the BNL design collar. (Phil Sanger will look into the question of the die procurement.)

2. Shell Welding: BNL will proceed to obtain a new yoke lamination die to be used for the long magnets. It will have the

mid-plane weld backup strip slot dimensioned for the FNAL fiducial weld rail to permit shell welding on the FNAL press without any alteration of the setup. The yoke diameter will also be decreased slightly to accommodate the FNAL shells which are .195 inches thick, .007 more than the BNL shell dimension. This will eliminate the need to obtain the .188 shells for the BNL long magnets.

3. Interconnections: The objective of the discussion was to determine what information would be required in order to arrive at some recommendations on interconnection compatibility. For the string test interconnection questions, it will first be necessary to produce a dimensioned layout of the lead and return end cold mass closures of the BNL version with the dished head using the following assumptions:

a. The return end of the magnet will have the BNL type hair pin expansion joints plus a number of instrumentation connections that need to be specified.

b. The number and type of instrumentation connections required for the string test for the lead end need to be determined. It is noted that the strain gauge instrumentation connections may not be necessary for the string test since this data will have been previously obtained from the single magnet test. (This information will be developed by W. Clay, J. Cox and W. Smith in time for review at our next meeting on this subject.)

c. The type and design of the interconnection for a single magnet test may be different than that used for the string test for various reasons. The increased number of instrumentation connections which may be required for the single magnet test is one of them. I will look into this compatibility question.

4. New Issues: The question of the assembly of the end sections of the BNL version coil which uses a ramp splice rather than the collet and external splices needs to be addressed at the next meeting. A determination will be made of the method of technology transfer of end fabrication to FNAL and the industrial people should these magnets be required for the string test. (P. Sanger will look into this.)

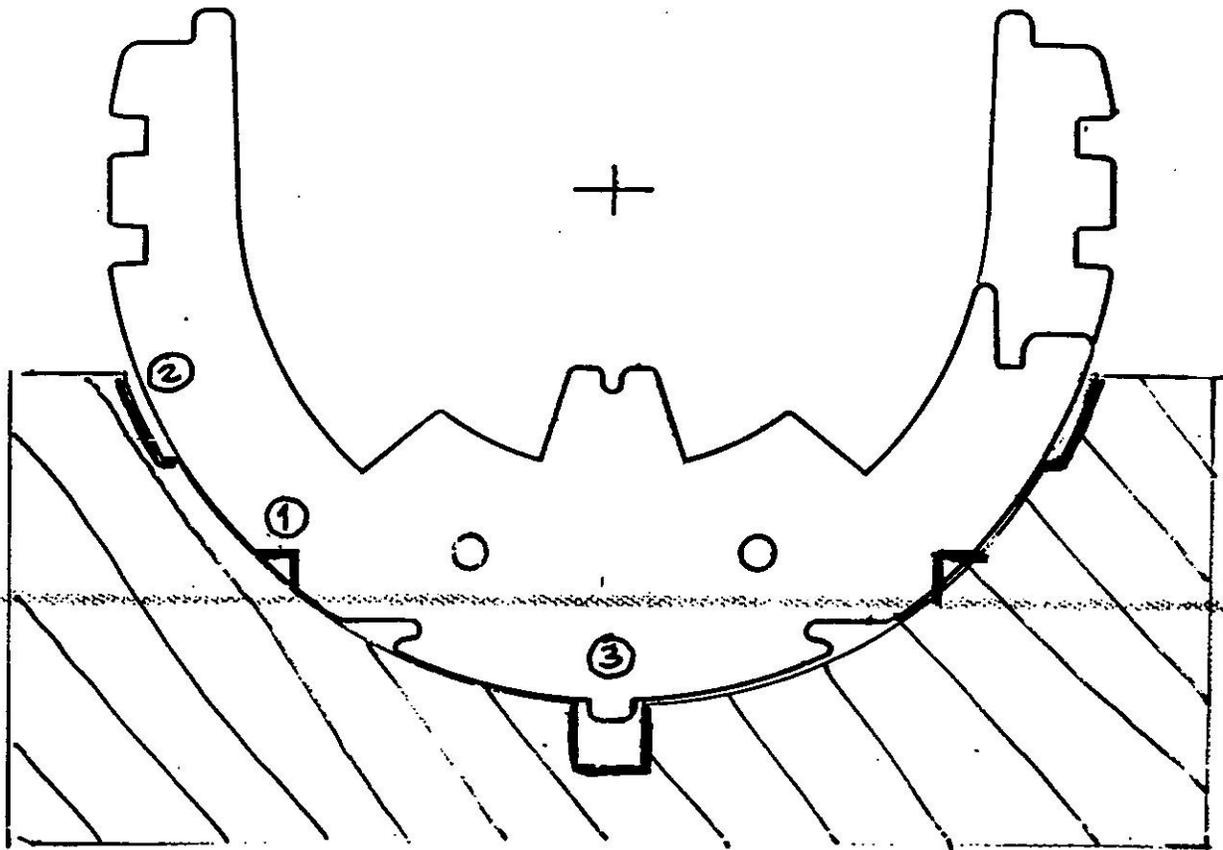
I would like to continue with the resolution of the pending issues at a forthcoming meeting which I would like to hold at FNAL on Sept. 13. I will confirm this date after checking with the parties involved.

cc:

T. Bush
W. Clay
P. Sanger
J. Tomkins
E. Kelly, BNL
E. Willen, BNL
J. Carson, FNAL
J. Strait, FNAL

Enclosure: Figure 1

FIGURE 1

BNL COLLAR INTO FINAL PRESS.OBSTACLES

- ① INTERFERENCE OF ALIGNMENT TABS.
- ② CUTOUT FOR FINAL COLLAR REDUCES LATERAL SUPPORT OF BNL COLLAR ; COULD CAUSE YIELDING AT ASSY.
- ③ PRECISE ALIGNMENT REQUIRED AT VERTICAL TAB OF BNL COLLAR MUST BE ACHIEVED BY CUSTOM FITTING INSERT INTO LOOSELY TOLERANCED (± 0.010) KEYWAY.